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A PROTO-IONIC CAPITAL FROM THE SITE OF NEANDREIA.

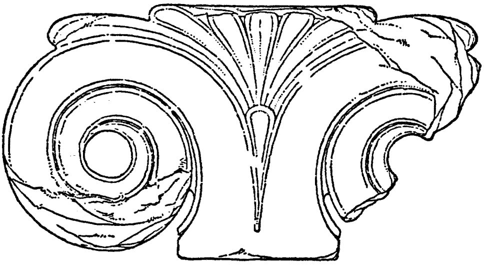

FIG. 1.—*Present condition of the block.*

I.

This capital,—the most primitive memorial of the Greek Ionic style as yet brought to light,—was found by the writer, Sept. 24, 1882, upon the summit of Mount Chigri, in the Troad. Chigri is midway between Assos and Ilion, opposite Tenedos, and ten kilometres from the coast of the Aegean. The extensive ruins upon the site are, as will be shown, in all probability those of the ancient Neandreia. They have never been disturbed by excavations, and for more than 2,000 years this remote and precipitous height has been uninhabited. During previous surveys, in 1881 and the spring of 1882, no sculptured stones or architectural members were to be seen above the surface of the ground. But in the summer of the latter year Turkish masons from the neighboring village of Yaïladjyq, in search of squared building-stones, had dug a shallow trench within the city enclosure, exposing a corner of this block, which escaped destruction because of its irregular shape. It was easily freed from the soil, and was afterwards removed by Mr. Frank Calvert to the farm of Akchi-Kieui (Thymbra), where it was carefully examined and drawn. Together with it were discovered various fragments of archaic terra-cotta,—portions of a leaved kyma, decorated with a dark purple and black glaze like that found upon the most ancient terra-cottas of Sicily.

The stone is a fine-grained volcanic tufa, of a light reddish-gray color, obtained from a formation occurring in various parts of the western and southern Troad. At Assos this material is employed only in the oldest works, such as the lion's head which formed one of the gargoyles of the chief temple,[1] and a scroll believed to be part of an akroterion of the same building. Tufa is never found among later remains, and thus bears the same relation to the archaic architecture of the Troad as poros does to that of the Peloponnesos and Sicily. The first Greek stone-cutters required a material more easily worked than andesite, or even marble, and made up for the roughness of the stone by priming the surface with stucco and painting it with body color.

The capital remains in a state of preservation so good, that no doubt can exist concerning any detail of the design. Some of the corners have been split off, nearly half of one of the volutes being missing; but in view of the friable nature of the tufa, and its long exposure to the weather, the sharpness of the remaining tooled edges is surprising (*fig.* 1). The building to which the capital belonged must have been a ruin twenty-two centuries ago, and the block, when found, was not protected by any great depth of earth; yet the surface has not been at all affected by a decomposition like that which has so obliterated many of the sculptures and mouldings of the harder and coarser stone used at Assos.

The excellence of the design can have resulted only from an acquaintance with many spiral prototypes; and the admirable character of the technical execution is proof of a long practice in the carving of similar details. The capitals of the later ages of Greek art are of a higher and more organic development, better serving in æsthetic respects as functional members of the columnar system; but they are rarely of better proportion, or of a more firm and graceful outline (*fig.* 2). Too much emphasis cannot be laid upon the fact, thus evident, that this capital is by no means a first experiment in the application of spiral forms to the upper member of a column, but is rather to be considered as a link in the long chain of architectural development which gradually led to the perfect forms of the capitals of the Erechtheion.

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[1] Now in the Boston Museum of Fine Arts: No. S. 1162. Cf. the writer's *Report on the investigations at Assos, 1881.* Boston, 1882, p. 94, pl. 12.

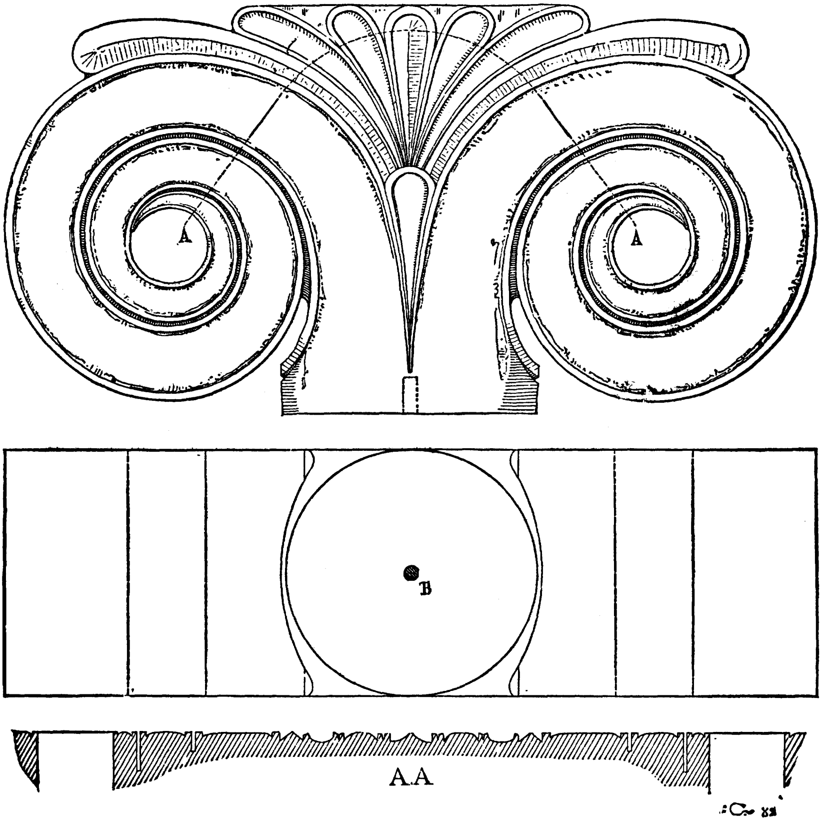

FIG. 2.—*Restored view: plan and section of capital.*

The helix is exact, and seems to have been determined by unwinding a cord, to the free end of which was attached a chisel-point, from a cylinder about 0.03m. in diameter, or perhaps,—for so great a refinement is not inconsistent with the character of the design,—from a slightly diminished cone as the evolute, fixed in the centre of the perforation. The bordering fillets of the spiral vary in width from 17mm. to 3mm., and are perfectly accurate to their very termination. The intelligent skill of the designer is especially to be seen in the manner in which the leaves of the anthemion have been profiled: their plane-angular, fluted, reeded, and concave-angular sections securing a play of light and shade such as no geometrical drawing can indicate (section AA, *fig.* 2). The incisions which separate the surfaces of the volutes are deepened as they retreat from the centre, gradually increasing from a shallow notch to a cut not less than 0.11m. deep. The spiral line thus varies in appearance from a light grey to a perfectly black shadow. The circular perforation in the centre of the volute,—the *ὀφθαλμός* of the Erechtheion inscription,[2]—measures 0.125m. in diameter. It probably served for the insertion of disks of some brilliant material, such as colored marble, glass, or metal. This method of decoration had been common in the Oriental prototypes from which the most characteristic features of the Ionic style were derived, and, though seldom adopted by the Greeks of a later period, was still employed in the volutes of the fully-developed Ionic capital,[3] as well as in the eyes of the parotides and guilloche mouldings. The hole is cut completely through the stone, for what purpose is not clear.

The capital, at its point of juncture with the shaft beneath, is not exactly circular in plan; the diameter from side to side being 0.01m. greater than from front to back. The summit of the shaft must consequently have been slightly elliptical. This irregularity of the stone-cutting is very remarkable in view of the perfection of the spirals and mouldings; and, as the excess is in the axis of the epistyle, it may have resulted from the capital, or more probably the shaft, having been cut from a block not sufficiently thick to allow one of the dimensions to equal the diameter determined by the designer. The capital was attached to the drum adjoining it by a cylindrical dowel, the hole for which (B, in plan *fig.* 2), 0.02m. in diameter and 0.055m. deep, is bored with great nicety. This pin must have served as an axis for the grinding of the capital upon the subjacent stone, during the last rubbing down of the bed surfaces. The top of the capital, which is tooled to a perfect plane, shows no traces of dowels or clamps. The reverse of the stone is, in all the main features of the design, the same as the front, but the details are somewhat less elaborate and the execution less careful. The scroll of the back is slightly rounded in profile, but has no bordering fillets, while the anthemion leaves are of simpler section, and without rims.

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[2] II. 42. Hence termed *oculus* by Vitruvius (III. 5, 6), whose technical terms are, for the greater part, translated from the Greek.

[3] As for instance in the Erechtheion, in the great temple of Ephesos, in that of Sardis, etc.

It is a question of much importance whether the shaft, to which the capital belonged, was placed close to a wall as a stele, or was employed as a constructive support in a building. The small diameter of the column, and, especially, the fact that one side of the capital was evidently not exposed to close inspection, seemed at first to favor the former view. After careful examination, however, the writer became convinced that the capital surmounted a tall column, probably standing *in antis* and supporting a wooden epistyle.

Notwithstanding the great projection of the volutes,—the width of which far exceeds that customary in the steles of Greece,—the bearing of the imposed weight is limited to the middle leaves of the anthemion. If the block had been the capital of a stele, intended, for instance, as a stand for inscribed stones or votive offerings, advantage would naturally have been taken of the console-like projection of the scrolls by a bearing upon the outermost leaves. This restriction of the abacus to a surface less than half as broad as the capital itself must have been determined by the consideration that, otherwise, the slightest sagging of the epistyle-beam would have crushed the sides of the volutes. From the extreme care taken to disengage the outermost leaves of the anthemion from contact with the lintel, it is evident that this precaution was held in mind.

The great projection of the volutes, as well as their shape, was derived from traditional models. The form, originally determined by the exigencies of a timbered construction, was here retained as a mere decoration, filling out the corners between the vertical support and the horizontal lintel. Thus, all the leaves of the anthemion and the backs of the volutes approach very nearly to the soffit of the epistyle, which, in the most closely related prototype (*fig.* 7), they had actually adjoined. That the precaution was taken to restrict the weight of the entablature to a part of the capital but little larger than the upper diameter of the shaft, proves it to have formed part of a constructive framework. The lack of dowellings between this support and the imposed mass is, so far as it goes, in favor of the same conclusion. The stones of Greek steles, because of their liability to be displaced by lateral pressure, were commonly joined together by metallic fastenings cast in lead; but, for evident reasons, the abacus of a true column is not often thus connected with the lintel above it.

The most conclusive argument, however, is to be derived from the size of the block. A calculation based upon the proportions of monuments of the fully-developed Ionic style leads to the assumption, that the shaft and base belonging to the capital would, together with it, reach a height of between four and four and a half metres. Even this is considerably more than the height of the columns of many prostyle temples; and a building with columns *in antis* must necessarily be assumed to have been of modest dimensions, especially in the Troad.[4] But it is probable that the actual size of the shaft was greater than we should be led to expect from such a comparison. The columns of primitive Greek architecture were, in general, more diminished than those of the perfected styles; the ratio of the upper diameter to the lower, and to the height of the shaft, would consequently have been smaller than that assumed. The fact that the back of the capital is not treated with the same elaboration and care as the front is explained by the assumption that it was situated at some height, in a dark and narrow pronaos *in antis*, so that a good view of the inner side could not be obtained.

All these points,—the excessive projection of the volutes, resembling the original wooden prototype of the console-capital, the precautions taken to prevent the edges from being injured by a sagging of the epistyle-beam, the fragile nature of the stone, and the small diameter of the shaft,—lend weight to the supposition that the entablature was formed, not of blocks of stone, but of timbers and joists, such as those imitated in the fascias and dentils of the later Ionic style.

The width of the capital is exactly twice its height, the volutes being drawn in squares the sides of which are, as nearly as could be measured without instruments of precision, 0.594m. long (1 ft. 11$\frac{3}{8}$ ins.). This dimension may with much probability be supposed to equal two feet of the measure used by the designer, the result being a unit of 0.297m. ($\frac{5}{16}$ of an inch less than one English foot). The thickness of the block is 0.357m., three-fifths of its height, or three-tenths of the assumed unit. The question of the metrological importance of these dimensions, and the decimal division of the foot employed throughout the Troad in the earliest historical ages, should not be entered upon until the stone has been measured with micrometrical exactness.

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[4] The Heroön of Assos, a Doric prostylos, has columns 3.6m. high.

The exceptional interest of our capital lies in its historical significance. It is one of the few memorials of the earliest period of architectural development among the Greeks that have not been swept away in the construction of the noble buildings erected soon after the Persian wars, or of the showy edifices of the Diadochi. The history of Neandreia will explain the circumstances which secured the preservation of those remains not easily removed from the site during ancient times. The capital cannot be ascribed to a later date than the sixth century B. C. It is one of the many experiments made by the Greeks of Asia Minor to determine the forms which, according to the tradition preserved by Pliny[5] and Vitruvius (IV. 1, 7), were first employed in connection with a peripteral plan in the primitive temple of Ephesos.

The testimony of antiquity is unanimous in the assertion, that the Ionic style, as its name signifies, was derived by the European Greeks from the eastern coast of the Aegean.[6] Discoveries of the present age have, further, made it evident, that the most characteristic features of this style passed through the earliest stages of development, neither in Greece nor in Asia Minor, but in Mesopotamia.

Before the application of the historic method to the study of the derivation of architectural forms, the determination of the influences which led to the adoption of the Ionic details was nothing but hopeless conjecture. It is not long since, that scholars literally believed, or at all events seriously considered, the explanation of the origin of the style given by Vitruvius (IV. 1, 7), who relates that the Ionic column imitated the proportions of a woman,—the volutes of the capital representing the curled locks of hair; the flutes and fillets of the shaft, the folds of the wide draperies; and the base, the sandals. Thiersch,[7] who occupied a position of the highest eminence among classical scholars during the first half of the present century, gave this picture a touch of reality by his identification of the Ionic woman as a priestess with curled tainias tied about her ears. Whatever may be the truth of the Vitruvian simile, as characterizing the lightness and grace of the Ionic in comparison with the virile proportions of the Doric, modern writers, in following the example of the Roman *maestro muratore*, have not restricted their comparisons to such pretty themes.

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[5] Pliny's words (XXXVI. 56), *in Ephesia Dianae aede primum columnis spirae subditae et capitula addita*, can only be referred to capitals, as well as to bases, of the Ionic style.

[6] Nothing can be more at fault than Boetticher's statement (*Tektonik der Hellenen*. Berlin, 1874, second edition, vol. I. p. 165) that the Ionic style originated in Attica. The entire position of this remarkable work in regard to questions of architectural history is a warning against the misleading influence of æsthetic theories.

Winckelmann[8] suggested that coiled snakes may have served as models for the volutes. Stackelberg[9] argued that the twisted horns of rams, suspended on the walls of primitive sanctuaries, or on the corners of altars, were imitated by the original designer of the Ionic capital. This idea was elaborated by Raoul-Rochette,[10] and particularly by Carelli,[11] passing into the text-books through K. O. Mueller.[12] Wolff[13] believed that the bark of trees, placed upon the top of the Doric echinos "before it had an abacus," by curling round the block had provided the starting point for the helix; while Hahn[14] took the spirals of marine shells as his model. Among the advocates of such absurd prototypes we may note no less an authority than

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[7] F. W. Thiersch, *Ueber die Epochen der bildenden Kunst unter den Griechen.* (Second edition) Halberstadt, 1829.

[8] J. J. Winckelmann, *Versuch einer Allegorie, besonders fuer die Kunst.* Dresden, 1766.

[9] O. M. von Stackelberg, *Der Apollotempel zu Bassae.* Frankfurt am Main, 1826.

[10] D. Raoul-Rochette, *Monuments inédits d'Antiquité.* Paris, 1834.

[11] F. Carellius, *Dissertazione esegetica intorno all' origine ed al sistema della sacra architettura presso i Greci.* Napoli, 1831.

[12] K. O. Mueller, *Handbuch der Archaeologie der Kunst.* (Third edition) Stuttgart, 1878, 54, 3.

[13] J. H. Wolff, *Aesthetik der Baukunst.* Leipzig, 1834. This explanation has been reiterated, during the past year, by H. Jennings, *Phallicism, celestial and terrestrial, heathen and Christian.* London, 1884.

[14] G. von Hahn, *Motive der Ionischen Saeule.* Wien, 1862.

Viollet-le-Duc,[15] who conceived the Ionic volute to have been copied from curled shavings left by the primitive carpenters upon the sides of their wooden posts, illustrating this tasteless theory by a cut that shows forms which wood could not assume under any treatment. Even less satisfactory are those conceptions of an idealized spring, taking the shape of an elastic cushion, which, placed upon the Doric capital in the direction of the epistyle, is supposed to have been squeezed out by the superimposed weight of the entablature so as to curl again around the edges of the echinos. Chief among the professors of this view is Guhl.[16] This list might be greatly extended. Marini[17] gives the names of no less than twenty-six writers upon the Ionic capital previous to the publication of his own work in 1825. Some of the early treatises, such as those of Selva[18] and De Rossi,[19] display an ingenuity and a learning worthy of a better cause.

All these labored explanations of the significance and derivation of the Ionic capital have fallen to the ground,—all this misdirected antiquarianism has become a fit subject for ridicule,—upon the recognition of the fact that a capital of anthemions and volutes, essentially of the same character as that of the Ionic style, was customary in Mesopotamia for centuries previous to the development of Greek architecture, and is to be traced through Kappadokia, Phrygia, and Phœnicia, to the coast of Asia Minor occupied by the Hellenes. A great variety of terminal ornaments were formed by the designers of Assyria in imitation of the radial leaves of the palmetto. The ends of quivers, the plumes of horses' trappings, and other unweighted tips, appear of precisely the same shape as the conventional representations of palm-trees upon Mesopotamian reliefs. When these palmettos were so bound together as to form the so-called Tree of Life, or such branches of flowers as are held by certain deities, the ends of the connecting ribbons or the bracts were curled at the base, taking the place of the bunches of dates seen under the palm-trees of the reliefs. In architectural details this form was adopted, almost without change, for the apex of steles. Among the ruins of the palace of Khorsabad[20] a square post has been preserved, in all respects like the anthemion steles of Greece, the terminating palmetto being the same as that continually occurring upon Greek vases[21] and the antefixes of early Greek temples.

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[15] E. E. Viollet-le-Duc, *Entretiens sur l'architecture.* Paris, 1858–72. Fig. 6.

[16] E. Guhl, *Versuch ueber das Ionische Kapitael.* Berlin, 1845.

[17] L. Marini, *Sul ritrovamento da me fatto dell' metodo di descrivere la voluta Ionica Vitruviana,* in the *Atti dell'Accademia Romana di Archeologia.* Roma, 1825, vol. II.

[18] G. Selva, *Dissertazione sulla voluta Ionica.* Padova, 1814.

[19] G. de Rossi, *Esercitazione sulla voluta del capitello Ionico.* Firenze, 1817.

It is with the higher development of these forms, through their connection with the functional capital, that we are at present concerned. By the adoption of the palmetto as an ornament intermediate between a support and an imposed weight, the spread of the leaves was necessarily much restricted. An increased importance was thus assigned to the projections adjoining the shaft. It was natural that this should have been made in the shape of a volute. The spiral was, in every way, the form most pleasing to the early Mesopotamian decorators. Not only did the ends of bows, the hilts of swords, the carved ornaments of furniture, and the embroidered trimmings of robes assume this shape, but the spiral served in the pictorial art of Assyria to represent objects really of entirely different outline, such as entwined stems and leaves of plants, curls of the human hair and beard, and even ripples of water. In short, the spiral was as universal in the designs of Mesopotamia as were the triangle and the zig-zag in those of Egypt.

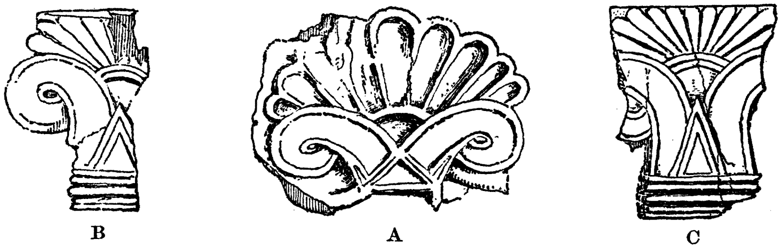

FIG. 3.—*Ivory-carvings from the north-western palace of Nimroud.*

Out of the ornamental spirals and palmettos of Assyria were gradually developed the volutes and the anthemion of the Ionic style. Semper,—most suggestive of writers upon the architectural forms of the ancients,—displayed the extraordinary intuition for which he is remarkable, when he declared the evolution of the Ionic capital to exhibit a *stufenweise Umbildung des zuerst nur eine leichte Palmette tragenden Volutenkelches in den balkenbelasteten Saeulenknauf.*[22] The capabilities of this combination for conventionalized development led to its frequent employment in the details of various architectural decorations. Several ivory-carvings from pieces of furniture, found in the north-western palace of Nimroud and now in the British Museum, clearly show the Assyrian form of this capital[23] (*fig.* 3). That marked A is not, strictly speaking, an architectural detail. A lateral connection, visible beneath one of the volutes, shows it to have formed part of such ornamental foliage as that before referred to. The palmetto is consequently predominant and of a semi-circular outline. B and C, on the other hand, show the form as adapted to a functional capital. The leaves have decreased in size and elaboration; they have become a simple anthemion, and are terminated by the straight line of an epistyle. The volutes occupy three quarters of the height; they are of more independent formation and better proportion. The horizontal lines at the base are multiplied and emphasized, forming a division between the capital and the shaft similar to the annulets of the floral columns of Egypt. The absolute similarity between these two examples proves that the shape was a definitely determined type of decoration. There is every reason to believe that these ivories are exact representations of a capital systematically employed in Assyrian architecture. They are essentially the same as the early Greek capital of Mount Chigri, from which they differ only in the imperfect spiral

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[20] V. Place, *Ninive et l'Assyrie.* Paris, 1867–70, vol. III. pl. 34.

[21] One among many: Attic lekythos, with a representation of Orestes at the tomb of Agamemnon, from the collection of Count Pourtales-Gorgier, published by Raoul-Rochette in his *Monuments inédits d'Antiquité,* pl. XXXI. A.; and also by A. Maisonneuve, in his *Introduction à l'étude des vases antiques.* Paris, 1817, pl. XXX.

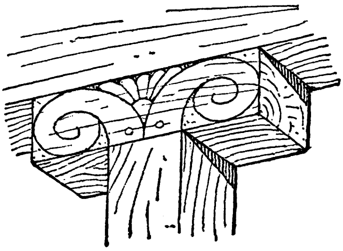

FIG. 4.—*Supposed decoration of the original wooden capital.*

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[22] G. Semper, *Der Stil in den technischen und tektonischen Kuensten.* (Second edition) Muenchen, 1878. Compare, also, J. Braun (*Geschichte der Kunst,* Wiesbaden, 1856–58), "*Der Ionische Stil gehoert Niniveh, vielleicht bereits Babylon an; denn er ist der gemeinsame Stil Asiens schon in unberechenbar alter Zeit—er ist ein maechtiger Stil, dessen Sendboten wir durch ganz Kleinasien und ueber die phoenikische Kueste nach Karthago und ins innerste Afrika verfolgen koennen.*"

[23] That marked *A* is shown in a small and inexact vignette serving as the tailpiece to the list of illustrations in Layard, *Discoveries in Nineveh and Babylon.* London, 1853. The others have not hitherto been published.

of the volute, and in the triangle masking the convergent lines at the base.

Owing to the nature of the building-materials of Assyria, the columns of that country were of wood,[24] and but few vestiges of them have been preserved. Fragments of wooden shafts, encased in scales of bronze, have, however, been found,[25] and these suffice to give certainty to the conclusions derived from the representations of columns upon Mesopotamian reliefs.

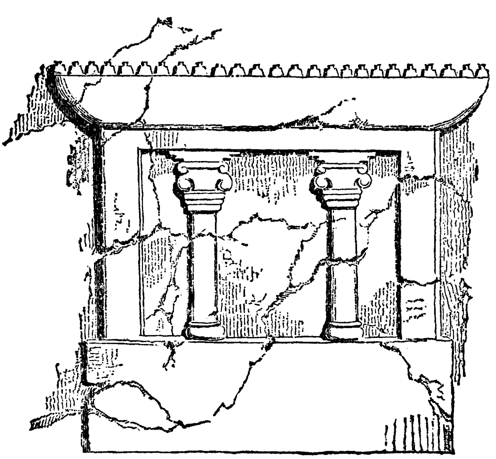

FIG. 5.—*Assyrian ædicula from a relief. Khorsabad.*

No doubt can exist as to the origin of the spiral capital from the application of the above-described forms to the details of such wooden supports. As is the practice in every rational construction of timber, a horizontal block, projecting in the direction of the imposed beam, was placed between the support and the epistyle (*fig.* 4). This intermediate member lent itself readily to a decoration of anthemion leaves and lateral volutes. Spirals were drawn upon the projecting sides, either in color or in incised lines. Wooden columns with capitals of this kind, similar in design to the ivory-carvings before described, seem to have been universal in Assyria, and to have formed, so to speak, the only columnar order of the architecture of that country. They appear in the well-known representations of ædiculas, like that standing in a royal park, upon a relief from the northern palace of Koyundjik,[26] and that on the bank of a river, from Khorsabad[27] (*fig.* 5). The fact, that the spirals are, in these instances, so doubled that four volutes appear between the shaft and the epistyle, does not affect the fundamental character of the capital, this duplication being due to the adoption of two transverse blocks of wood, instead of one.

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[24] Layard's workmen kindled their watch-fires with the timbers employed nearly three thousand years ago in the construction of the palaces of the Assyrian kings. Strabo (739), in an interesting passage relating to the buildings of Babylon, remarks that both beams and columns were made of the trunks of palm-trees, the latter, in the dwellings of the poorer classes, being wound around with twisted wisps of straw, coated with stucco and painted. A more monumental method of this revetment, referred to in Note 25, imitated the scales of the palm-tree in sheets of bronze.

[25] A cylindrical column of cedar wood was found and published by Place, *Ninive*, vol. I. p. 120, and vol. III. pl. 73.

Even more exact information concerning the appearance of the Mesopotamian capital is to be obtained from the Sippara stone, dating from about 900 B. C., now in the British Museum. Upon it is shown one side of a tabernacle under which a deity sits enthroned, and it is believed by Assyriologists that the artist has here imitated details of the chief sanctuary of Sippara. The column is represented with the greatest care. The slender shaft, evidently of wood, appears to be covered, in imitation of the bark of a palm-tree, with scales like those discovered by Place, and the capital is of a spiral form, very similar to the ivory-carvings (*fig.* 6). The volutes spring from the shaft, from which they are separated by three annulets. They bear a bud of semi-circular outline, of the same general form as the anthemion, and precisely like that of a Phœnician capital found in Kypros (*fig.* 7), this abbreviation of the palmetto having been rendered necessary by the cramped space between the scrolls, which did not allow an indication of the separate leaves. The appearance of these details upon the base, as well as upon the capital, of the Sippara column is the clearest possible evidence of the timbered construction: the intermediate block of carved wood being as much needed between the base of the post and the sill, as between its summit and the epistyle beam. The adoption of forms originally thus determined does not, of course, disprove the assumption of Perrot,[28] that the capital of

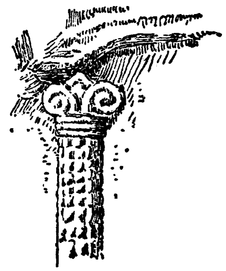

FIG. 6.—*Upper part of a Babylonian column from the Sippara stone.*

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[26] A. H. Layard, *Nineveh and its Remains.* London, 1849, vol. II. Published also in G. Rawlinson, *The Five Great Monarchies of the Ancient Eastern World.* (Second edition) London, 1871, vol. I.; and in many other text-books.

[27] Botta et Flandin, *Monuments de Ninive.* Paris, 1849–50, pl. 114. The illustration is taken from this work.

[28] Perrot et Chipiez, *Histoire de l'Art dans l'Antiquité.* Vol. II. *Assyrie.* Paris, 1883. The author, however, certainly goes too far when, in the subsequent volume of the

Sippara was itself executed in sheet bronze, either soldered or beaten to shape. The prototype,—the member to which the helix and anthemion were first applied as a decoration,—was certainly of wood.

The forms of the baluster, from its first appearance until the present day,—during well-nigh three thousand years,—have never overcome the one-sidedness resulting from this original timbered construction. Contrary to the Doric and Corinthian capitals of the ancients, to the trapeze-shaped capital of the Byzantines, and to the cube capital of the Romanic style, the Ionic volutes, like the consoles of such Indian piers as those of the grotto of Ajanta, are chiefly developed in the direction of the epistyle. When we, today, employ the spiral capital,—whether placing the volutes vertically, like those of Pompeii, or horizontally, according to Vignola's text-book of the Renaissance,—we make use of forms which can be traced back to the details of Mesopotamian ornament: in the same way that so many of the words which we utter are derived, through many transformations, from the primitive speech of our Indo-European ancestors.

Long before the Greeks had built in the Ionic style,—while the stone walls of the primitive fanes of Hellas still supported the beams imitated in the Doric entablature,—the races inhabiting the plateaus of Kappadokia, Lykaonia, and Phrygia, in Asia Minor, had derived the chief features of their architecture from Mesopotamia. The spiral capital of Assyria appears in Kappadokia in a city probably destroyed as early as the time of Kroisos;[29] the Assyrian palmetto has recently been found as the termination of a column in the great necropolis of ancient Phrygia;[30] and the celebrated tombs of Lykia, especially those of Antiphellos, Myra, and Telmessos, exhibit, together with

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history, he assumes that the form of the volutes was suggested by a sphyrelaton model.

[29] Identified with Pterion in G. Perrot, *Exploration archéologique de la Galatie et de la Bithynie, d'une partie de la Mysie, de la Cappadoce et du Pont; exécutée en 1861.* Paris, 1862–72. Compare a general view of the Ionic style given by the same author in an essay on *l'Art de l'Asie Mineure, ses origines, son influence,* reprinted from vol. XXV. of the Revue Archéologique in his *Mémoires d'Archéologie, d'Épigraphie et d'Histoire* (Paris, 1875); and in his short note *Sur l'origine de l'Ordre ionique,* in the Bulletin de la Société Nationale des Antiquaires de France, année 1871.

[30] W. M. Ramsay, *Some Phrygian Monuments.* Reprinted from the Journal of Hellenic studies, 1882, pl. XIX.

late and debased forms, such primitive features as to place it beyond doubt that this province was an important station in the advance of the Ionic style from Mesopotamia to the Aegean. The most striking examples of the intermediate stages of development, however, are the Phœnician works brought to light in Syria, Malta, and especially in Kypros. All the varieties of the Assyrian volute are recognizable among these remains. A capital discovered at Trapeza, near Famagusta, Kypros, now in the Louvre,[31] (*fig.* 7), is of precisely the same type as that represented by the ivories of Nimroud, and the capital of Chigri. The clearest possible understanding of the development of the Ionic volutes is gained by a comparison of this work with the conventional decorations of Mesopotamia on the one hand, and the primitive Greek capital on the other, between which it forms a connecting link. The designers of Phœnicia, in adopting the forms of Assyrian art, served rather to perpetuate than to perfect. In architectural history the importance of this commercial people consists in their having spread abroad methods of artistic expression derived by them from older civilizations, rather than in any great progress of their own. The capital of Trapeza is an improvement upon the Assyrian model, in that the volutes occupy the entire height between

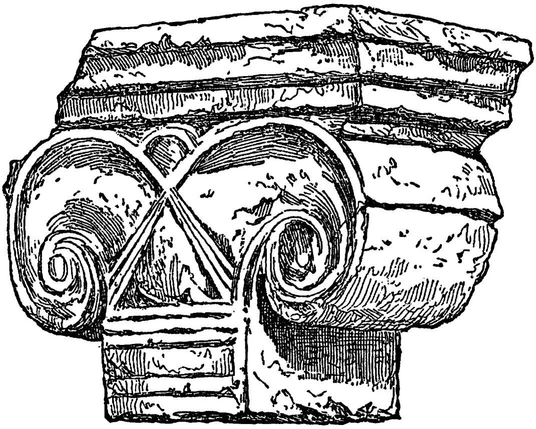

FIG. 7.—*Phœnician capital found at Trapeza, Kypros.*

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[31] Perrot et Chipiez, *Histoire de l'Art dans l'Antiquité.* Vol. III. *Phénicie-Chypre.* Paris, 1885. The illustration is taken from this work. The height of this capital is 0.75, the thickness 0.30, the length of the abacus 1.22m.

the abacus and the annulets, and approach more closely to the true curve of the helix. But in other respects the changes are few and by no means advantageous. The square plan of the original wooden post has been retained, together with the broad annulets and the triangle of hard lines, which are connected with the base of the volutes in a most inorganic fashion. The high abacus of long and narrow plan, borrowed from the capitals of another style, restricts the development of the spiral projections and cramps the anthemion to a mere knop, of still less importance than that of the Sippara capital.

Even before the discovery of the capital from Mount Chigri, the representations of Ionic details upon the most ancient Greek vases made it evident that the primitive form of this member must have had a much greater projection than that customary in the perfected examples, and that the volutes did not lie upon an echinos moulding, but grew directly from the shaft, bearing between them an anthemion. An archaic amphora from Volcei, now in the British Museum,[32] clearly shows this formation (*fig.* 8). The painted and incised outline upon this vase might be a direct imitation of such a capital as that now brought to light, with which it agrees even in proportions. Another archaic vase of the same collection (No. 480) shows a very similar capital. The architectural details of such paintings were

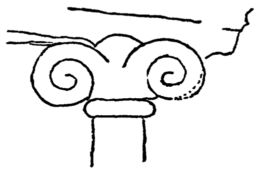

FIG. 8.—*Ionic capital from an archaic vase.*

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[32] The painting on this vase is published by E. Gerhard (*Auserlesene griechische Vasenbilder.* Berlin, 1839–58, vol. IV. taf. CCXLI) but without sufficient accuracy for architectural comparison. Capitals of the kind are by no means uncommon: compare F. Inghirami, *Pitture di Vasi.* Firenze, 1852–56. Vol. III. Tav. 384.

In rare instances volute capitals of primitive form were executed in relief. One of the most remarkable examples is the detail of terra-cotta,—possibly the handle of a large vase,—found during the excavations at Assos. Its upright scrolls and clumsy abacus are touched with white, the rest of the red clay being covered with a dull-red surface-priming. This fragment is now in the collection of antiquities from Assos, in the Boston Museum of Fine Arts, and is numbered *P.* 4121.

It is probable, also, that the heraldic sphinxes of Assos, upon the epistyle of the chief temple of that place, rest their paws upon a diminutive Ionic stele, in the same manner as the lions of the gate of Mykenai face an inverted proto-Doric column. The surface of the stone has been so obliterated by weathering that the spirals cannot be traced upon either of the reliefs; still, it is plain, from that in Boston numbered *S.* 1158, and especially from that shown by pl. 19 of the Assos Report, that the sculptor has here represented the outline of the volutes, and even of the middle anthemion, of an archaic Ionic capital.

declared by Hittorff to be *les seuls souvenirs qui nous restent d'édifices sacrés sur lesquels les notions historiques ont entièrement disparu.*[33]

The discovery here published supplies the actual archaic example hitherto wanting.

The Chigri capital shows a great improvement, even upon those works most closely related to it which have been found in the interior of Asia Minor and in Kypros. Hellenic genius, brought to bear upon this architectural member, at once manifests its superiority in technical respects. The deformed volutes of the Kypriote capital have become perfect spirals, while the anthemion leaves, as before explained, are of great subtlety of design. The disturbing triangle at the base of the volutes has been omitted; and the annulets, if still employed, are transferred to the shaft. A decided progress is noticeable in the omission of the Phœnician abacus, and the restriction of the epistyle-bearing to a small part of the capital. In this point the style has here already attained to its final perfection.

In other regards, it is still far removed from the most primitive Ionic capitals of Greece hitherto known. The excessive projection, considerably greater upon either side than the diameter of the shaft, betrays the close dependence of the capital upon the forms of a wooden construction. In striking contrast to the square termination of the Doric column, the plan of this member is so oblong that the front is more than three times as long as the side. A lateral projection so disproportionate, not only could never have originated in the stone terminations of a round shaft, but it would be difficult to believe from the drawing (*plan, fig.* 2) that the capital was executed in that material.

So one-sided a capital could only have been employed *in antis*. With the subsequent introduction of the peripteral plan it became necessary to render the proportions of front and side more nearly equal, in order to adapt the volutes to the corner column,—which always presented the chief difficulty of this style.[34] The important combination peculiar to the perfected Ionic capital, the conjunction of an echinos with the volutes, was one of the means chosen to effect this end. The front of the capital from Chigri is as entirely without projection, as is that of the hypothetical wooden support given in figure 4 to illustrate the first application of the helix to the termination of a column. In the Erechtheion, however, the length of the capital in proportion to its depth is found, when compared with that of Chigri, to have been reduced by very nearly one half, the ratio of the baluster to the front of the volutes being about 4 to 7.

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[33] Hittorff et Zanth. *Architecture antique de la Sicile.* (Second publication) Paris, 1870.

[34] The assertion of Lohde (*die Architektonik der Hellenen*, Berlin, 1862; reprinted in J. M. von Mauch, *Die architektonischen Ordnungen der Griechen und Roemer.* Seventh edition, Berlin, 1875), that the forms of the Ionic style originated in connection with the peripteral and dipteral (!) plan is utterly incorrect, and would be beneath criticism, were it not that it is made in a popular text-book.

The impossibility of allowing the epistyle to rest upon any part of such volutes as those of the Chigri capital, and the desire to emphasize the horizontal lines of the termination, led to a further change of much significance, namely, the inversion of the scroll in such a manner that the two spirals no longer proceeded from the shaft, but were connected by a horizontal band, upon the back of which rested the narrow abacus and the epistyle-beam. This arrangement is unquestionably of great antiquity, appearing upon the before-mentioned relief of Kappadokia and in archaic vase-paintings from Kypros. It was destined to wholly supersede the upright volutes. But, as in the Doric style some primitive features were retained in the antae-capitals, so, even in the latest periods of Greek architecture, the principle of the vertical volutes continued to be employed in the capitals of pilasters, as for example in those of the great temple of Miletos, and of that of Athena Polias at Priene. With this change in the position of the volutes the anthemion ceased to be a constituent member of the Ionic capital; yet so entirely had it been identified with the style, that it remained persistently in use as a subordinate decoration: appearing not only in antefixes, simas, and decorated bands, but in the inner corners of the spirals, and in the Attic necking of the capital itself. In the archaistic capital of the temple of Bassae, the anthemion even assumes its original position between the two volutes in the middle of the face.

There is but a single example known to illustrate the stages of development intervening between the capital from Chigri and those of the peripteral Ionic temples, namely, the fragmentary capital from the Heroön of Selinous, probably referable to the sixth century B. C. (*fig.* 9). Unfortunately, so little remains of this, that it is not even certain whether the volutes were vertical or horizontal; probabilities favor the assumption of the latter arrangement, but in this respect no great weight can be attached to the restoration given by Hittorff.[35] The helix, though it has more numerous turns, is very similar in general character to that of the Chigri capital. The relative thickness of the member is, however, much greater, and it is especially remarkable that the roll, although not contracted as in all later balusters, has been decorated with a pattern of scales. Apart from the too numerous convolutions of the spiral, the most immature feature of the design is the excessive projection of the abacus, the edge of which is ornamented with an egg-and-dart moulding. From this it appears that the change in the position of the volutes led, at first, to an extension of the bearing. This was again reduced in subsequent times, the front of the strip receiving the same carved ornaments as the side.

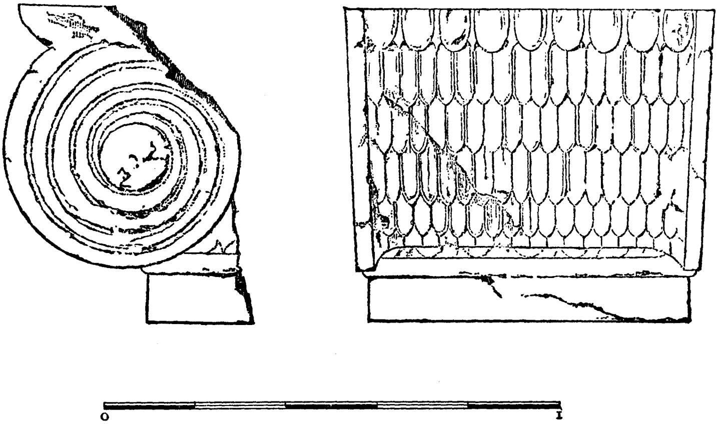

FIG. 9.—*Fragment of an archaic Ionic capital from Selinous.*

It is worthy of note, as an evidence of the tentative methods of this period of advance, that the Ionic capital was, as in the Heroön of Selinous, often employed together with the Doric entablature of triglyphs and metopes: the capital developed upon the tall palm-shafts of Asia thus being combined with the entablature derived from the wall-plates and beams of primitive Hellas. It is not strange that, among the few remains of this earliest period, but one monument of so imperfect an arrangement should have been preserved until the present day. But the number of examples furnished by the paintings of archaic Greek vases[36] may be taken as an indication that the forms of the volute-capital had come into general use at a period when the Ionic zophoros and dentils had not been introduced into Greek architecture, or, at least, had not been developed into a system.

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[35] J. I. Hittorff, *Restitution du temple d'Empédocle à Sélinonte* (Paris, 1851, pl. VI.), and the work before quoted on the ancient architecture of Sicily. The illustration is taken from the latter publication.

The same elements that formed the capitals of the Erechtheion constituted the terminations of the weak and overladen shafts of Persepolis; the spirals and palmettos of semi-barbarous Mesopotamian decorations were employed as architectural details by the designers of Persia, as well as by those of Attica. Yet the decadence evident in the architecture of Persia is contemporary with the highest development of the Ionic style among the Greeks. No better illustration is possible of the truth, that growth, and not invention, is the principle of all progress in ancient art.

The builders of the present age have to deal with a confusion of decorative forms and constructive methods similar to that which prevailed throughout the ancient world before the rise of Greek architecture. Hence, the most direct and practical service of archæology to architecture must consist in a historical elucidation of those principles of artistic selection and evolution which were followed by the Greeks in their progress toward the incomparable perfection of Attic monuments.

JOSEPH THACHER CLARKE.

[*Conclusion in next number.*]

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[36] As, for instance, the archaic vase in the British Museum, No. 480, and that published by Inghirami, before referred to. Many others have been collected by Hittorff. It may be assumed, with great probability, that the combination of the triglyph-frieze with the Ionic capital, observable in such later structures as the tomb of Theron at Akragas, the Tomb of Absalom near Jerusalem, and several rock-cut façades in the great necropolis of Kyrene, is due to a reminiscence of the primitive employment of these features upon the same building. It will be observed that these monuments of Sicily, Syria, and Northern Africa are, although late, decidedly provincial, and hence might naturally be expected to preserve barbarous and immature traits which had wholly disappeared from the art of Greece itself.